# Courtship display of Rufous-breasted (Chiriquí) Quail-Dove *Zentrygon chiriquensis*

*by Daniel M. Brooks*

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Rufous-breasted (Chiriquí) Quail-Dove *Zentrygon chiriquensis* is endemic to the highlands (300–3,100 m) of Costa Rica and western Panama (Kirwan 2010). It is a relatively little-known species, with natural history accounts containing large gaps in knowledge (e.g., Baptista *et al.* 1997, Gibbs *et al.* 2001, Kirwan 2010, BirdLife International 2013). Similarly, little (Gibbs *et al.* 2001) to no information (Baptista *et al.* 1997) exists in general Columbidae synopses regarding components of the courtship display in *Geotrygon* and *Zentrygon*.

Banks *et al.* (2013) split the genus *Geotrygon* into three groups based on genetic data. These are: (1) the nine species of *Geotrygon* (Indigo-crowned *purpurata*, Sapphire *saphirina*, Crested *versicolor*, Ruddy *montana*, Violaceous *violacea*, Grey-fronted *caniceps*, White-fronted *leucometopia*, Key West *chrysia* and Bridled Quail-Doves *mystacea*), (2) Olive-backed Quail-Dove *Leptotrygon veraguensis*, and (3) eight species in the newly proposed *Zentrygon* (Tuxtla *carrikeri*, Buff-fronted *costaricensis*, Purplish-backed *lawrencii*, White-faced *albifacies*, White-throated *frenata*, Lined *linearis*, Russet-backed *chiriquensis* and Russet-crowned Quail-Doves *goldmani*). However, no information was provided on how these species are related morphologically or behaviourally.

Behavioural characters comprising innate fixed-action patterns can be used to help elucidate avian phylogenies. Studies utilising behavioural characters to elucidate relationships among birds have been undertaken at specific (Gaucher *et al.* 1996), generic (Garcia & Brooks 2007), familial (Archibald 1976, Hughes 1996) and ordinal (Kennedy 1996) levels. The purpose of this note is to describe the heretofore unknown courtship display of *Z. chiriquensis*, and to determine its phylogenetic context in light of recent data (Banks *et al.* 2013).

Data were collected anecdotally from observations of a male housed outdoors in the subtropical climate of Houston, Texas (housing and feeding described in Brooks 2010). The bird (banded DWA 515 right leg) was on loan for two years (29 September 2010–24 September 2012) from the Dallas World Aquarium (DWA), Texas. The male cohabited with a female conspecific from its arrival until 18 November 2010, and again from 26 February 2011 until both were returned to DWA. Birds were recently descended from stock imported from Chiriquí province (Panama), and were naturally reared by, and with, conspecifics to ensure natural behaviour.

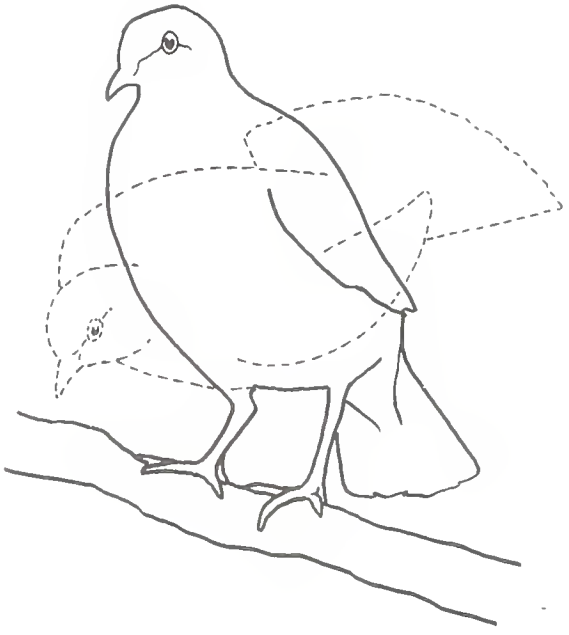

Figure 1. Courtship display of Rufous-breasted (Chiriquí) Quail-Dove *Zentrygon chiriquensis*. Solid line = normal position, dashed line = courting position with head bobbing downwards as tail is raised (drawing by Beverly Garland)

TABLE 1
Courtship components in six species of quail-doves, three each of *Geotrygon* and *Zentrygon*.

| Species | stationary head down and tail up | pumping head down with tail up | wings in normal position | wings open or quivering | on perch | low perch or ground |
|---|---|---|---|---|---|---|
| *Geotrygon* | | | | | | |
| *G. versicolor* | x | - | - | x | - | x |
| *G. montana* | - | x | x | - | - | x |
| *G. caniceps* | x | - | - | x | - | x |
| *Zentrygon* | | | | | | |
| *Z. frenata* | - | x | - | x | - | x |
| *Z. linearis* | - | x | - | x | - | x |
| *Z. chiriquensis* | - | x | x | - | x | - |

Courtship component present (x) or absent (-).

Gibbs *et al.* (2001) provided brief courtship descriptions for four species: *G. montana*, *G. caniceps*, *Z. frenata* and *Z. linearis*. Additional data for *G. versicolor* (DMB unpubl.) and *Z. chiriquensis* (provided herein) permits rudimentary analysis of innate courtship display components among these six species.

The study individual hatched in March 2010 and, on 12 November 2011, was first observed displaying when 20 months old. Displays were subsequently witnessed on multiple occasions over the following ten months until the bird was returned to DWA. Displays occurred irrespective of whether the male was housed with a female. The display (Fig. 1; supporting video clip: hmns.org/quaildove) involved bobbing the head down simultaneously with the tail being raised (*c.*1 second), then tail down as the head returned to normal position (*c.*1 second). The wings remained tucked in their usual position but the tail was fanned during the display. The display was always performed on a branch 0.7–1.7 m above ground, but never while on the ground.

*Z. chiriquensis* is the only quail-dove known to fan its tail during courtship, as well as to display from a perch and never on the ground (Table 1). Although two other species of *Zentrygon* (*Z. frenata* and *Z. linearis*) share similar components of the courtship display noted for *Z. chiriquensis* (bobbing the head downwards as the tail is raised and vice versa), other components of *Z. frenata* and *Z. linearis* courtship are more similar to *Geotrygon* (*G. versicolor* and *G. caniceps*). Perhaps the species most parsimonious to *Z. chiriquensis* in terms of courtship display components is *G. montana*, which holds its wings in the normal position as it performs the bobbing head down as tail goes up pattern.

Broader sampling of *G. montana* throughout its range may reveal significant intraspecific variation. Given the species' widespread distribution, it is possible that various cryptic forms (Bickford *et al.* 2007) have not been discovered, which may explain the parsimony between the phylogenetically divergent *Z. chiriquensis* and *G. montana* (R. C. Banks pers. comm.).

The results of this rudimentary analysis of courtship displays may be biased by inadequately detailed or the complete lack of descriptions. For example, Gibbs *et al.* (2001) indicated that all species of *Geotrygon* and *Zentrygon* call from the ground or a low perch. However, such behaviour was never observed during ten months of observation in the male *Z. chiriquensis*; moreover this bird was rarely, if ever, seen utilising the ground, preferring to remain arboreal. More rigorous analyses must await additional and more

detailed descriptions of *Geotrygon* and *Zentrygon* courtship behaviour to provide more robust results.

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*Address*: Houston Museum of Natural Science; Dept. of Vertebrate Zoology, 1 Hermann Circle Drive, Houston, TX 77030-1799, USA.

# Recent observations of White-eyed Starling *Aplonis brunneicapillus* on Guadalcanal, Solomon Islands

*by Petter Z. Marki, Markus Lagerqvist & Ashley Banwell*

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White-eyed Starling *Aplonis brunneicapillus* is a poorly known Solomon Islands endemic. Since its description, based on a single male specimen from Buin, Bougainville (Danis 1938), additional records have come from Choiseul, Rendova and Guadalcanal (Amadon 1943, Beecher 1945, Cain & Galbraith 1956, Gibbs 1996, Dutson 2011). However, there have been very few recent records, with all of those in the last decade at Mt. Austen on the outskirts of Honiara, Guadalcanal, where 1–5 birds were seen on *c.*25% of visits in 1990–2010 (G. Dutson *in litt.* 2014). The species is potentially threatened by the ongoing felling of nest trees to eat the young, combined with high rates of habitat degradation and deforestation